IMPERIAL
DEPARTMENT OF AGRICULTURE
FOR THE WEST INDIES.

IMPERIAL BUREAU
9 AUG. 1928
OF MYCOLOGY

REPORT

ON THE

AGRICULTURAL DEPARTMENT, ST. VINCENT,

FOR THE YEAR

1927.

TRINIDAD.
ISSUED BY THE IMPERIAL COMMISSIONER OF AGRICULTURE
FOR THE WEST INDIES.

1928.

[Price Sixpence.]

REPORTS

ON THE

BOTANIC STATION, ECONOMIC PLOTS, AND AGRICULTURAL EDUCATION, ST. VINCENT.

Annual Reports on certain Economic Experiments conducted in connexion with the Botanic Station, 1900–2.

Annual Reports on the Botanic Station for the years 1901 and 1902.

Annual Reports on the Botanic Station, Economic Experiments, and Agricultural Education for the years 1902–3 to 1918–27.

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1928.

LETTER OF TRANSMITTAL.

No. C. A. 173.

TRINIDAD, 22nd May, 1928.

Commissioner of Agriculture to His Honour the Administrator, St. Vincent.

SIR,

I have the honour to transmit the Report of the Agricultural Superintendent on the working of the Agricultural Department, St. Vincent for the year 1927.

2. The report indicates that the rainfall for the year was normal and that the routine work of the Botanic Gardens, the Experiment Station and Nurseries was carried out on the usual lines.

3. The Economic Plants distributed included 17,500 papaw seedlings. This distribution has been made for the purpose of encouraging the production of papain as a minor crop. The falling off in the number of coconuts sent out is stated to be due to the activity on the part of estate proprietors in establishing nurseries, rather than to any falling off in the interests in coconut cultivation. This would appear to be a useful development.

4. Consideration has been given to the fruits and vegetables which might be grown for export to northern markets, and the notes on the characteristics and qualities of mangos which might be useful for export appear to be useful and interesting.

5. The manurial experiments with cotton, maize and ground nuts have been continued. The results from these experiments would be of greater value if a larger replication of plots could be made.

6. The Cotton Selection and control of insect pests have followed the lines of previous years. A Simon Heater has been installed at the Government Ginnery for the destruction of pink bollworm in cotton seed. The cotton stainer has been effectively controlled. Cotton suffered heavy losses from the soft rot of the boll. This condition raises again the question of the right time for planting in St. Vincent. Reference to the rainfall chart would indicate that planting might be done much later in the season, perhaps as late as October or November. A serious loss of crop is predicted as a result of the prevalence of soft rot in the 1927-28 season.

7. The area planted to cotton was much less than in the previous year, and somewhat less than the average for the past five years. The excess of production of Sea Island cotton over consumption for several years past and the accumulation of large stocks in the hands of the Fine Spinners' and Doublers' Association indicate the necessity for a continued reduction in output for several years until the accumulated stocks have been used up.

8. The general crop conditions were satisfactory. The exports of cacao were rather less than the average for the past five years. Arrowroot exports were up to the average and those of cassava starch well above it. Sugar and syrup exports were average, with sugar as an article of export for the first time since 1924; maize crop average, coconuts increasing in area cultivated and amount of product exported, and ground nuts showing a considerable increase in amount exported.

9. The trials with Manila Hemp appear encouraging and the report by the Imperial Institute on samples submitted satisfactory.

10. The unsatisfactory state of affairs referred to in the working of the Agricultural Credit Societies in St. Vincent in 1926, appears to have persisted during

1927. There appears to have been very little use made of the facilities offered by these Societies, and in the case of several of the branches no attempt appears to have been made to pay off arrears. It is regrettable that the Credit Societies could not be successful in St. Vincent, where it would appear that conditions were favourable, with a diversified agriculture and a large and fairly prosperous peasantry. It would appear that those Societies which are not actively functioning should be wound up, rather than allow them to continue to accumulate arrears of interest on the loans already made.

I have, &c.,

(Sgd.) H. A. BALLOU,
Commissioner of Agriculture
Imperial College of Tropical Agriculture.

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Staff of the Agricultural Department, St. Vincent.

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Assistant Agricultural Superintendent	
Government Veterinary Surgeon	
Cotton Inspector and Government Vaccinating Officer...	L. BROWN.
Foreman, Experiment Station and Agricultural Instructor	F. A. SIMMONS.
Foreman, Botanic Station and Inspector, Cotton Stainer Control to August 16th	E. BANFIELD.
Foreman, Botanic Station and Inspector, Cotton Stainer Control from September 1st	P. BRANCH.
Officer in Training to October 31st	H. A. NANTON.
,, ,, ,, from November 1st	R. VANLOO.
Clerical Assistant	Miss D. E. WALL.

REPORT ON THE AGRICULTURAL DEPARTMENT ST. VINCENT.

For the year ended December 31, 1927.

Work in the Botanic Gardens and Observations on Plants.

The routine work in the Gardens was well maintained, and the interest that visitors take in the Gardens in no way decreased. No extensive improvements were carried out, but a number of plants growing in unsuitable places were removed. The work of converting earth drains into concrete ones was not continued during the year. The money for this work is obtained from a vote by which sheds and drains are kept in order, and the greater proportion of it during 1927 was spent renovating sheds. The Potting Shed and and the Plant House were repaired.

The rainfall for the year was 98·67 inches. The average for the past 34 years being 101·21 inches, the year can be regarded as normal as far as rainfall is concerned.

At the present time, considerable attention is given to the possibility of exporting mangoes to Canada. In the St. Vincent Gardens, the following varieties are growing :—Julie, Peach, Ceylon Nos. 1, 2 and 11, Imperial, Bombay and Gordon. The first named is the best all round mango in St. Vincent. It is a reliable yielder, the fruit has a moderately thick skin and carries well. They are in no way stringy and possess a rich creamy flavour ; the seed is flat so that the proportion of flesh to seed is high. Peach is a variety which cannot be relied on to bear each year, but at times it fruits heavily. The colour is greenish yellow, it has a stone of moderate size and possesses a delicate refreshing flavour and it is very juicy. The fruit bruises easily, and very considerable care would have to be taken in handling it if successful transport is to be looked for. Ceylon No. 1 is a kidney-shaped fruit with thick, yellow, firm meat ; its flavour has just a suggeestion of turpentine, but not enough to mar its sweetness. It has a thin skin but on account of firmness does not bruise readily. The tree is a moderately prolific bearer. Ceylon No. 2 is similar to the preceding but does not possess the suggestion of turpentine. Ceylon No. 11 is a small fruit, reddish brown in colour with firm meat. The mango is one that will travel well, but its size would handicap it as a fruit of first rate quality. In addition, a large number of them possess outgrowths similar in appearance to warts. The tree bears freely. Imperial is a large handsome fruit with a flavour slightly similar to that of Julie, except much more watery. This latter trait would militate against its carrying long distances. Like Peach it cannot be depended on to bear fruit annually. Bombay is a moderately sized yellow fruit with a decided taste of turpentine ; a liking for this has to be acquired. Gordon mango is a somewhat elongated fruit, yellowish in colour, it is slightly stringy and has a subacid taste unless perfectly ripe. Considering all round qualities, Julie easily comes first, then follow Ceylon No. 2, Peach and Ceylon No. 1. The others are not worth considering for export purposes.

Bougainvillaeas.

A cross, Bougainvillea spectabilis Var. laterita × Bougainvillea Lady Seaton James, was made. Three seeds resulted from this ; one seed did not grow, one germinated and died, and from one a plant was raised. So far this has not flowered.

Plant Importations.

There were no importations of plants of significance during the year but it might be said for purpose of record that the twenty plants of *Taraktogenos Wightiana*, * King, raised in 1926, were planted out in various parts of the Botanical Gardens during the period under review.

* In the Report on this Department for 1926 these plants were incorrectly named *Taraktogenos Kurzii*, King.

Work in the Nurseries and Distribution of Plants.

The following is a list of plants, seeds, etc., distributed from the nurseries attached to the Botanic and Experiment Stations:–

ECONOMIC AMD DECORATIVE PLANTS.

Papaw	17,583
Coco-nut	1,795
Miscellaneous decorative	228
Grafted mango (Julie)	140
Miscellaneous economic...	137
	19,883

CUTTINGS.

Cane varieties	119,850
Sweet potato	30,200
	150,050

SEEDS.

Arrowroot rhizomes	1,200 lb.
Cotton	781 ,,
Ground-nuts	160 ,,
Yam	42 ,,
Bengal Beans	31 ,,
Papaw	½ ,,
	2,214½ ,,

This is the first time on record that Papaws have appeared on the plant distribution list. A determined effort is being made to grow these on a commercial scale for the production of papain. A note on this industry appears in the Report on this Department for the year 1920.

There was a decided drop in the number of coco-nut plants distributed, this was to be expected as many estate owners have established their own nurseries; the decrease will in all probability become more pronounced from year to year.

There was a moderately large number of grafted mango plants sent out during 1927. The majority of these were sent to schools. The inarching of such trees is simple and the suggestion was made by the writer that, whenever it was feasible, grafted mango trees should be planted near schools, that teachers be taught how to do the work and that they should impart the acquired knowledge to their scholars. The plants grafted at the schools should be the property of the children who do the work to sell or to plant on their parents' land as they wish. In this way, it is hoped that knowledge of the method of grafting will be disseminated which will result in a large increase of these valuable fruit trees.

A large, probably a record, number of sugar cane cuttings was distributed. That the qualities of the new sweet potato varieties raised by this Department are appreciated can be seen by the number of cuttings that were distributed. No other item of the above is worth comment, except that of cotton seed. The 781 lb. were pure strain seed.

Numerous sugar cane varieties were raised during 1927. It is too early to say anything in connection with these.

Inspection and Fumigation of Imported Plants and Seeds.

The following is a list of plants, etc., which were imported, and fumigated under the Importation of Plant Diseases Protection Ordinance, 1906 :—

Vegetable seeds	...	...	18 parcels.
Ornamental plants	...	...	11 boxes.
Bulbs ...	...	...	7 parcels.
Pine apples ...	..	...	6 bags.
Sorghum ...	...	...	1 bag.
Ornamental and economic plants		...	1 parcel.

Manurial Experiments at the Experiment Stations.

Sea Island Cotton.

Manurial experiments with Sea Island Cotton were again conducted during the year, but the results are not available at the time of writing.

Maize (Indian Corn).

Manurial experiments have been conducted during the past six years. The area of each plot was 240 square feet. There are seven series, each being in duplicate. The manurial treatment of the plots was as follows :—

Series 1 ... No manure.
„ 2 ... Nitrogen, 30 lb. per acre as sulphate of ammonia.
„ 3 ... Potash 30 lb. „ „ „ „ potash.
„ 4 ... Nitrogen and potash as above.
„ 5 ... Cotton seed meal, 1,000 lb. per acre.
„ 6 ... Potash as above, cotton seed meal as above.
„ 7 ... Pen manure, 20 tons per acre.

In the following the average percentage increase over the no manure plots is given. The figures are for six years.

Series.	Percentage increase over no manure plot.	Series.	Percentage increase over no manure plot.
2	8	3	8
4	8	5	9
6	18	7	26

The results from series six and seven show significant increases.

Ground Nuts.

Manurial experiments have been conducted with this crop for the same period of time as for maize, and the manurial treatment accorded the plots was the same, except that pen manure was applied at the rate of 15 tons per acre instead of 20. The plots were in triplicate and each was 240 square feet in area.

The average percentage increase for 6 years over that obtained from no manure plots is as follows.

Series.	Percentage increase.	Series.	Percentage increase.
2	6	5	8
3	6	6	4
4	8	7	2

In all cases the manures applied during 1927 had a depressing effect on yield. This is difficult to account for.

Sweet Potato Varieties.

Twenty-nine new varieties of sweet potato were tested for productivity. The plots were 240 square feet in area and the variety V. 52 was planted in every tenth one. This variety was raised some years ago. It has the reputation of

being a heavy yielder, and in this experiment should be regarded as a standard. The results from the first twelve varieties are given ; to give figures for all would make the table unduly long. The figures put forward are the calculated yield per acre in pounds.

Variety.	Yield per acre.	Increase or decrease when compared with yield of V. 53.
V. 206	5,808	+1,324
V. 52	4,484	
V. 220	3,053	—1,431
V. 212	3,008	—1,476
V. 229	2,949	—1,535
V. 221	2,904	—1,580
V. 203	2,836	—1,538
V. 228	2,859	—1,528
V. 217	2,360	—2,124
V. 201	2,042	—2,442
V. 224	1,951	—2,533

The new variety V. 206 gave a yield of some 1,300 lb. of potatoes per acre in excess of that produced by V. 53. It is possible that this variety will be a valuable acquisition to growers of this crop.

Yam Varieties.

Experiments with nine varieties of yams were conducted during the year. There were four plots of each variety planted, the area of each being 160 square feet. Half of the plots were staked and the other half unstaked. They were planted on May 16th, and reaped on December 9th. The results are given in the following.

Variety.	Calculated yield per acre unstaked. lb.	Mean. lb.	Calculated yield per acre staked. lb.	Mean. lb.	Increase of staked on unstaked. lb.
Danish ...	3,621	—	16,710	—	—
	7,242	5,432	16,153	16,432	11,000
Horn ...	13,090	—	17,269	—	—
	5,570	9,330	17,545	17,406	8,076
Bugle Horn ...	6,684	—	15,314	—	—
	5,013	5,849	12,254	13,786	7,937
Light Red ...	10,304	—	16,710	—	—
	12,254	11,279	15,874	16,292	5,013
Lisbon ...	9,747	—	18,660	—	—
	18,102	13,925	18,381	18,521	4,596
Seal Top ...	7,798	—	12,532	—	—
	15,317	11,558	18,938	15,735	4,177
Crop ...	10,304	—	14,761	—	—
	13,089	11,697	15,874	15,318	3,621
Oriental ...	13,646	—	14,203	—	—
	12,532	13,089	17,267	15,735	2,646
Bottle Neck Lisbon ...	16,710	—	24,229	—	—
	24,786	20,748	22,280	23,255	2,507

As will be seen the staked plots gave much better returns than the unstaked ; this was very pronounced in the case of variety Danish. Bottle Neck Lisbon was the most prolific bearer.

Sugar Cane Experiments.

Experiments with sugar cane varieties were conducted during the year. The results were so poor as not to be worth putting forward. The land on which they were grown was of indifferent fertility and difficulty was experienced in getting the plants established.

Cotton Selection.

The figures put forward are for the season 1926–27. The work for 1927–28 as not yet been commenced.

In the following tables lint lengths are put forward in millimetres and the gures in the lint indices as grammes. The plants from which the results are btained have been grouped in families; the crosses in the tables indicate parental alues.

SEA ISLAND.

LINT LENGTHS IN MILLIMETRES.

Fam:	46	47	48	49	50	51	52	53	54	55	56	57	58
16 ...						2	2	4	9	6	1	+1	
30 ...			1					2	3	6	+11	5	1
27 ...		1		1	2	2	6	6	2	+3	1		
4 ...								1		11	+4	1	1
4 ...			1					2	3	6	+11	5	1
19 ...						2	2	4	9	6	1	+1	
9 ...							3	1	3	10	+5	3	2
1 ...							3	1	3	11	+5	3	2
15 ...						2	2		9	6	6	3	+
21 ...										1	2	2	+
14 ...				3	4	3	4	7	+6	2			
24 ...					3	1	2	4	9	9	1	+	
26 ...	2		3	4	4	5	4	1	+	1			
1 ...		2	1	2	1	6	4	9	1	+			
7 ...			1	1	2	2	5	6	6	1	+1		
10 ...										1	2	2	+
18 ...					6	4	4	4	+3	1			
28 ...					3	3	9	7	5	2	+		
9 ...			1	1	2	2	5	6	6	+1	1		
2 ...		1		1	2	2	6	6	2	+3	1		

SEA ISLAND.

LINT INDEX IN GRAMMES.

Fam.	3·25	3·50	3·75	4·0	4·25	4·50	4·75	5·0	5·25	5·50	5·75	6·0	6·25
16 ...		2	2	8	2	8	2				+		1
30 ...	1		5	13	4	4	1	+1					
27 ...		1		5	1	7	6	3		+			
4 ...	1	2	2	7	5		1	+					
4 ...	1		5	13	4	4	1	+1					
19 ...		2	8	3	8	2					+		
9 ...		1		14	5	6		+1					
1 ...		1		14	5	6		+1					
15 ...				1	2	8	10	6	1	+			
21 ...		1			2	2			+				
14 ...		3		7	4	5	9		+			1	
24 ...		3		6	7	12					+1		
24 ...					1			10	4	6	3		+
1 ...				1	9	9	4	+3					
7 ...	1		2	3	4	12	1	+2					
10 ...		1			2	2		+					
18 ...					3	2	4	7	6	+			
28 ...			1	4	9	8	5	1	1	+			
9 ...	1		2	3	4	12	1	+2					
2 ...		1		6	1	7	6	3		+			

MARIE GALANTE.

In the following the results obtained from Marie Galante cotton are given.

Lint Length in Millimetres.

Fam.	38	43	44	45	46	47	48	49	50	51	52
V. 8 ...					2	1	+1		3		
P. 7 ...								+	3	3	1
P. 4 ...								+	3	3	1
G. 4 ...					2		+			2	
C. 1 ...					+1		2	1		1	
C. 6 ...					+1		2	1		1	
N. 3 ...	1				+	1	1	2	2		
H. 8 ...		2		2		+1	1				
Y. 9 ...				1		+	1				

MARIE GALANTE.

Lint Index in Grammes.

Fam.	2·0	2·25	2·50	2·75	3·0	3·25	3·50	3·75
V. 8 ...		3	1	+1		2		
P. 7 ...	1		4		+2			
P. 4 ...	1		4		+2			
G. 4 ...					+4			
C. 1 ...						3	+	2
C. 6 ...						3	+	2
N. 3 ...					2	2	+1	2
H. 8 ...					2	+1	2	1
Y. 9 ...							+2	

It is unfortunate that the populations in the families of Marie Galante so small.

Work connected with Insect and Fungus Pests and their Control.

The Cotton Worm (*Alabama argillacea*, Hubn.)

This pest was found in St. Vincent in such small numbers during the sea that it was not necessary to use insecticides for its control, whereas in 1926, extensive damage was done by it. In the island of Mustique, somewhat weak protracted attacks were experienced. It is possible that insects parasitic on pest are not so common in that island as in St. Vincent. No Jack Spani

(*Polistes annularis*) are found, and the island is wind swept, a condition not conducive to the general well-being of minute insects.

The Pink Bollworm (*Platyedra gossypiella*).

The first definite evidence of the presence of pink bollworm was obtained on November 19th, this was much later than that of the previous year when it was found on September 25th. No reason can be put forward for this, but the general presence of soft rot on bolls masked the damage done by the worm. The very poor returns which will undoubtedly be got from the crop can be ascribed to three causes, indifferent cultivation, soft rot of bolls and last the attack of pink bollworm. The following gives the figures in connection with the percentage infestation of bolls as obtained from an observation plot at the Experiment Station. For the sake of comparison figures for the previous season are submitted.

Date.	Percentage infestation.	Date.	Percentage infestation.
3/12/27	5	11/11/26	3
10/12/27	7	25/11/26	10
17/12/27	17	2/12/26	16
24/12/27	46	7/12/26	50
31/12/27	54	16/12/26	69
7/1/28	71	23/12/26	100
14/1/28	90		
21/1/28	91		
28/1/28	100		

At the time of writing a Simon's Patent Heater is being used at the Government Cotton Ginnery for destroying this pest and the seed is heated immediately after coming down the gin shoots. The Heater has sufficient capacity to deal with all seeds from the Ginnery and also that from the other one operating in the island.

The Cotton Stainer (*Dysdercus delauneyi*).

The campaign carried out for the control of this pest during the season was on simllar lines to those of previous ones. It consisted of :—

a. The enforcing of a close season.

b. The trapping of the pests when found in numbers.

c. The destruction of food plants.

As in previous close seasons the island was divided into sections, and an Agricultural Officer made responsible for the carrying out of the law in each.

The work of destroying cotton plants was done moderately well, but in some instances they were not uprooted, being merely cut down, and subsequently new growth was formed. These young shoots were attacked by Leaf Blister Mite, a pest which has by the strict enforcing of close seasons, been relegated to a position of minor importance. This clearly demonstrates how pests, which have been quiescent for a period of time, again spring into prominence when control measures are in any way relaxed. During the month of May, stainers were found in numbers in the northern part of the island. These were controlled by means of traps. One peasant failed to destroy his cotton plants. His plot was in the extreme north of the island. The individual was not prosecuted as he had left St. Vincent. The work of destroying the plants was carried out by an Officer of the Agricultural Department.

A number of John Bull trees (*Thespesia populnea*, Sol.) were found growing on the Windward Coast; they had attracted stainers. The trees were destroyed, the number being 160.

In the following table the stainers accounted for at the Experiment Station for five years are given. The method employed in computing the figures has been put forward in a previous report.

Months.	1923.	1924.	1925.	1926.	1927.
January ...	37,878	20,086	1,449	2,850	—
February ...	63,800	2,800	7,723	—	105
March ...	51,880	930	6,231	791	1,072
April ...	3,002	1,225	2,400	5,136	334
May ...	817	52	716	100	3,660
June ...	908	—	—	—	3,060
July ...	550	—	—	—	—
August ...	87	—	1	—	—
September ...	3	—	1	—	—
October ...	8	—	—	—	—
November ...	—	—	—	—	—
December ...	377	57	550	—	150

Red Ring of Coco-nuts (*Aphelenchus cocophilus*).

This disease which has been discussed at some length in previous reports is not making headway in St. Vincent; a large proportion of coco-nut trees in the island have passed the critical stage.

Arrowroot Worm (*Calpodes ethlius*).

The arrowroot worm was not nearly so numerous during the year as it was in 1926. It was present on most estates on the Windward part of the island and on some estates in the Leeward district. A few owners dusted fields with insecticides and this helped materially to keep the pest in check.

Other Pests.

Cotton.

Bush Bugs (*Nezara viridula*) were present but did not cause any apparent damage. It should be realised that damage done to a crop by this pest is insidious in nature and not easily recognisable.

Bronze Beetle (*Colaspis fastidiosa*) caused damage early in the cotton season to young plants. Some planters neglected to keep cotton fields free from weeds, and this created an environment in which these insects thrive.

The fungus (*Sclerotium rolfsii*) was more common in fields during the early part of the year than is usually the case. The condition of these as noted above aggravated matters.

Black Scale (*Saissetia nigra*) White Scale (*Hemichionaspis minor*) and West Indian Mildew (*Ovulariopsis gossypii*) were all common during the end of the season.

Sugar-Cane.

Root disease (*Marasmius sacchari*) was found in most cane fields. Possibly the best remedy for this disease is the indirect one of keeping the fields well manured and in a high state of fertility.

Rind fungus (*Melonconium sacchari*) and pine apple disease (*Thielaviopsis paradoxa*) were both present during the year.

The Weevil Borer (*Sphenophorus sericeus*) and the Moth Borer (*Diatrea saccharalis*) were responsible for some injury to the crop.

Cacao.

Phytophthora rot of pods was more common during the year than it has been for some time. Thrips (*Heliothrips rubrocinctus*) were present.

Coco-nuts.

One instance of Little Leaf disease was noticed during the year. The Palm Weevil (*Rhynocphorus palmarum*) White Fly (*Aleyrodicus cocois*) and scale insects (*Asyidiotus destructor*) were found on these palms.

PLANT AND ANIMAL LEGISLATION ENACTED DURING THE YEAR 1927.

On March 12th an Order in Council was gazetted dealing with the Close Season for Cotton. The period for St. Vincent and the Northern Grenadines, except Mustique, was from April 11th to June 11th. For the latter mentioned Island the period constituting a Close Season was from April 16th to June 16th.

Amended Regulations were made under Section 15 of the Cotton Protection Ordinance, 1924. These were gazetted on October 25th. The importation of a Simon's Patent Heater for controlling pink bollworm in cotton seed made these amendments necessary.

EXPERIMENT STATION, UNION ISLAND.

Figures dealing with selection of Marie Galante cotton will be found in another section of this publication.

Rainfall.

The following gives the monthly rainfall as measured in Union Island during 1927. The readings were taken by the District Officer, Southern Grenadines.

Month.	Rainfal
January	2·28
February	·59
March	1·29
April	2·91
May	·76
June	2.77
July	1·18
August	1·62
September	1·03
October	3·44
November	3·33
December	·30
Total inches	21·50

Onion seed was imported and sent to Union Island. Uba cane plants were sent from St. Vincent. It is hoped that this cane which is an extremely hardy one will be useful as a fodder plant during dry seasons. Sweet potato and cassava cuttings were also sent to Union Island.

PROGRESS IN CHIEF INDUSTRIES.

Cotton Industry.

The area under cotton in St Vincent and the St. Vincent Grenadines during the year under review amounted to 4,358 acres. Of this 3,364 acres were under Sea Island, and 994 under Marie Galante. When compared with the previous season it is seen that there was a reduction of 2,792 acres under Sea Island, and also a reputed reduction of 306 acres under Marie Galante. The area of the latter type of cotton had for a number of years been exaggerated. This fact was brought to the notice of growers, who amended the figures.

Following the procedure of previous years the appended tables are given. They indicate the number of peasant and estate growers of cotton in the Colony and the area under the crop for the season 1927-28. For the sake of comparison the figures for 1926-27 are also given.

TABLE 1.

1926–27.

			Sea Island. Acres.	Marie Galante. Acres.
2,742	Peasants, St. Vincent		2,795	
313	,, Bequia		292	
			3,088	
263	,, Union Island			725
42	,, Canouan			75
3,360				
53	Estates, St. Vincent		3,068	
2	,, Grenadines			500
55			6,156	1,300

TABLE 2.

1927–28.

			Sea Island. Acres.	Marie Galante. Acres.
1,561	Peasants, St. Vincent		1,455	
172	,, Bequia		139	
			1,594	
235	,, Union Island			656
37	,, Canouan			78
2,005				
40	Estates, St. Vincent		1,657	
4	,, Grenadines		113	
4	,, ,, ...			260
48			3,364	994

During the season 1926-27 there were 3,055 peasant growers with an acreage of 3,088 acres under Sea Island Cotton, during the season under review there were 1,733 peasants with 1,594 acres. The cause of this decrease was undoubtedly due to the ravages of the cotton worm which occurred in 1926-27, and caused loss to growers; consequently, many grew crops of a less risky nature.

At the time of writing (February) figures are not available as to returns but only poor ones can be looked for. In the early part of the season many growers gave indifferent attention to their cotton fields and in some cases weeds were allowed to grow to such an extent as to smother the young crop. In Bequia, pink bollworm appeared early and accounted for extensive losses. It is doubtful whether cotton will ever again be successfully grown under the conditions existing in that island. Planters in Bequia grow, in the same land and at the same time as cotton, peas, cassava and corn. The corn ripens and is reaped before the major crop, and the stalks pulled and left in the field. The peas and cassava

remain in the ground for some time after the cotton is harvested. This practice creates an ideal set of conditions for the carrying over in numbers of pink boll-worm.

The Close Season for cotton for the season 1926-27 was from April 11th to June 11th. An attempt was made by planters to have an extended Close Season so as to carry out the suggestions contained in the Report on this Department for the year 1925. This failed on account of their ideas on the subject not being unanimous. The suggestion was that the late planting of cotton would eliminate a good deal of the losses annually sustained by shedding, soft rot, etc. Had these been carried out, the return of cotton would have been very much better. The poor returns are mainly due to soft rot (*Phytophthora*). At the Experiment Station actual counts of the number of bolls destroyed by this disease were made Plots A, B and C were planted in July, D was planted in August. The figures are as follows :—

Plot A. Number of bolls destroyed by soft rot 64·4 per cent.
" B. " " " " " " " 55·9 " "
" C. " " " " " " " 61·7 " "
" D. " " " " " " " 8·1 " "

In fields on some estates a higher percentage of bolls was destroyed by this disease than appears in the above. At the present time there is no hope of a second picking on account of pink boll worm. If the first is destroyed that is the end of the matter as regards any one season. It is suggested that St. Vincent Planters should again consider whether it would not be to their advantage to plant not earlier than the month of August.

In the following table the areas under Sea Island cotton for the past decade are given with the return per acre, etc.

TABLE III.

Crops.	Area planted, acres.	Weight of lint, lb.	Weight of lint per acre, lb.
1918-19	4,588	437,273	95·4
1919-20	5,079	475,650	93
1920-21	6,453	614,508	95
1921-22	2,907	278,744	93
1922-23	3,562	575,640	161·6
1923-24	3,387	473,248	139·7
1924-25	3,294	449,295	136·5
1925-26	4,893	585,483	119·7
1926-27	6,156	507,240	82
1927-28	3,364		Unknown.

Following the procedure adopted in previous years the annexed (Table IV) has been compiled. It shows the amount of Sea Island cotton exported for the periods indicated.

TABLE IV.

Years.	Export of lint, lb.
1917-18	427,273
1919	484,097
1920	494,871
1921	502,308
1922	338,279
1923	585,143
1924	520,369
1925	473,219
1926	588,793
1927	446,274

The Sea Island cotton exported during 1927 was valued at £39,204.

In addition to the above 53,381 lb. of Marie Galante lint, and 108,999lb. of seed cotton were exported. In terms of lint these figures represent approximately 70,620 lb. The combined value of lint and seed cotton was £3,919.

Restriction of Output.

The demand for Sea Island cotton has fallen off in recent years. At the end of the year St. Vincent had 692,850 lb. of cotton lint unsold. Most of this, (635,000 lb.) was in England; the remainder was stored locally. In addition other West Indian cotton-producing islands had large quantities on their hands. The position was serious, both from the growers' view-point and from Government's, the latter having advanced large sums of money to peasants for cotton. The Fine Spinners and Doublers Association made an offer for the whole of the unsold cotton with the understanding that producers would in the future decrease production so as to give them an opportunity to get rid of their stock; this offer was accepted. His Honour the Administrator, appointed a Committee under the Chairmanship of the Agricultural Superintendent to consider the question. The Committee realised that united West Indian action was necessary, and with this in view suggested to other islands that St. Vincent would be willing to restrict the export of Sea Island cotton to 50 per cent of the average for the past five years, and that cotton be exported under license. It was felt that if this were adopted, and other islands did likewise, the stocks of cotton which had accumulated would gradually be absorbed. However, they did not adopt this suggestion; it was left to planters to do the necessary restriction by agreement amongst themselves. In these circumstances the committee recommended that this island should adopt the same method as others.

Cacao Industry.

The amount of cacao exported from the Colony during 1927 amounted to 135,490 lb., some 16 per cent less than the average export during the past ten years.

Cacao plants are deep rooted and will penetrate considerable distances in the earth to get into touch with subsoil water. The plants also form masses of fibrous roots near the surface. Most of the land in St. Vincent which is planted in this crop is by no manner of means deep and cacao suffers much during droughts. Some planters object to mulching as it is argued that such a practice induces the growth of surface roots which are liable to be killed in the dry weather. The effect of this is not so severe as some imagine, and this statement can be easily proved by the grower himself if he mulches one part of his estate or fields, and leaves the other without mulch. One point which is perhaps not grasped sufficiently is the effect of wind on this crop, and if protection from wind is not provided by natural conditions it should be supplied artificially.

The following gives the amount of cacao exported during the past decade.

Year.	Weight. lb.
1918	207,507
1919	219,545
1920	168,594
1921	139,135
1922	137,349
1923	121,374
1924	138,910
1925	154,821
1926	174,599
1927	135,490

According to Treasury figures the cacao exported during 1927 was valued at £9,267 or at the rate of approximately 4d. per lb.

Starch Industry.

The price ruling for arrowroot has been fair but there still remain quantities unsold in England. Increasing exports are being made to places other than the United Kingdom. During the year the total amount sent out of the island was 3,195,478 lb., of this 1,346,885 lb. went to England and 1,848,593 lb. to other places. Of the latter the United States absorbed 1,147,096 lb. This being 232,717 lb. in excess of that shipped to the United States during the previous year. The next best customer for arrowroot was Barbados which took 273,549 lb. and was followed by Canada with 260,018 lb. As time progresses it is more than probable that the latter country will absorb increasing quantities. Other places to which arrowroot was consigned were Holland, Germany, Trinidad, British Guiana, Antigua, St. Lucia, Grenada and St. Kitts.

The quantity of cassava starch exported was 543,681 lb. This was valued at £4,940. All was shipped to West Indian markets.

The following table gives the exports of arrowroot and cassava starch for the past ten years. Values are also given.

* Year.	Arrowroot lb.	Value. £	Cassava. lb.	Value. £
1918	5,084,262	95,828	332,227	3,831
1919	2,244,575	42,222	430,465	4,836
1920	2,794,532	52,771	343,309	3,844
1921	2,093,358	21,216	156,888	1,666
1922	2,692,130	26,141	160,333	1,482
1923	2,177,182	31,829	366,085	3,700
1924	2,952,535	51,361	634,631	6,838
1925	3,190,412	53,174	470,284	4,160
1926	3,291,553	45,807	443,075	4,077
1927	3,195,478	53,309	543,681	4,940

From the above it will be seen that during 1927 arrowroot was valued at approximately 4d. per pound and cassava at 2d.

Syrup Industry.

During the year 839,000 lb. of sugar were exported from St. Vincent; previous to this no sugar was exported since 1924. Two estates in the island recently erected new and improved sugar machinery. In addition 171,063 gallons of syrup were sent out of the Colony.

The exports of sugar and syrup for the past ten years are given below.

Year.	Sugar lb.	Value £	Syrup Gallons.	Value £	Total Value £
1918 ...	316,640	3,295	79,830	4,796	8,093
1919 ...	250	3	170,482	10,722	10,725
1920 ...	...	...	185,999	27,828	27,828
1921 ...	322,560	3,514	117,157	9,878	13,392
1922 ...	150,080	1,264	131,784	9,862	11,126
1923 ...	145,944	1,863	275,932	18,711	20,574
1924 ...	22,400	280	261,127	15,758	16,038
1925 ...	...	...	268,118	19,672	19,672
1926 ...	...	...	337,099	16,523	16,523
1927 ...	839,000	6,947	171,063	10,496	17,443

* The figures in this table have been amended to conform with those in Blue Books.

In the following, sugar has been equated into terms of syrup, and syrup into terms of sugar. It being estimated that 300 gallons of syrup are equal to one ton of sugar.

Year.	Syrup, Gallons.		Sugar, tons.
1918	122,134	Equal to	407
1919	170,512		568
1920	185,999		619
1921	160,357		534
1922	154,884		516
1923	295,432		984
1924	264,127		880
1925	368,118		1,220
1926	337,099		1,123
1927	283,563		945

The combined value of sugar and syrup was £17,443. Syrup alone was value at £10,496, or at the rate of approximately 14·7d. per gallon. The value of the sugar works out at a little less than £16 per ton.

PROGRESS IN MINOR INDUSTRIES.

Indian Corn (Maize).

The exports of corn were slightly above that of the previous year, being 98,879 lb. or 1,901 bushels, regarding 52 lb. as being a bushel. This was valued at £619 or at approximately 6/6 per bushel.

Year.	Export, bushels.
1918	3,037
1919	1,327
1920	2,428
1921	1,683
1922	581
1923	4,696
1924	2,766
1925	2,754
1926	1,751
1927	1,901

Coco-Nuts.

This industry is rapidly assuming the position of a major one. The area planted is annually increasing. Ten years ago the industry was of little value, now the exports are worth £10,000, a large sum of money to such a small Colony as this. If nothing untoward happens, an annual increase for several years can be looked for.

The following table gives the exports of copra and coco-nuts since 1918.

Year.	Quantity.			Value.	
1918	Coco-nuts ...	5,723		£ 22	£211
	Copra ...	7,104	lb.	189	
1919	Coco-nuts ...	7,000		47	£203
	Copra ...	9,319	lb.	156	
1920	Coco-nuts ...	16,448		144	£574
	Copra ...	22,644	lb.	430	
1921	Coco-nuts ...	13,339		82	£1,431
	Copra ...	89,005	lb.	1,353	
1922	Coco-nuts ...	770		£6. 4s. 2d.	£2,440 17 0
	Copra ...	223,593	lb.	£2,343. 13s. 10d.	
1923	Copra ...	356,626	lb.		£2,959
1924	Coco-nuts ...	4,841		£ 22	£5,452
	Copra ...	645,973	lb.	5,430	
1925	Coco-nuts ...	9,435		20	£5,532
	Copra ...	661,309	lb.	5,512	
1926	Coco-nuts ...	20,463		102	£9,928
	Copra ...	762,563	lb.	9,826	
1927	Coco-nuts ...	11,383		52	£10,135
	Copra ...	1,198,441	lb.	10,083	

The above figures are taken from Treasury returns, and it will be seen that copra was valued at some £19 per ton.

Assuming that three coco-nuts are used for each pound of copra manufactured, we find that in 1926 the copra exported was equivalent to 769,384 lb. and in 1927 was equivalent to 1,202,235 lb. a difference of 442,831 lb., showing an increase in one year of some 32 per cent.

Ground-nuts.

The quantity of ground-nuts exported amounted to 263,509 lb. or in terms of bushels 5,067. This shows an increase over the previous year of 1,394 bushels. They were valued at £3,219 or at approximately 3d. per lb. The following gives the exports for the past decade.

Year.	Export, bushels.
1918	13,489
1919	11,329
1920	12,017
1921	5,584
1922	8,336
1923	8,803
1924	6,195
1925	5,251
1926	3,673
1927	5,067

Peas and Beans.

There was a further decrease in the quantity of peas and beans exported. Only 38,719 lb. or 746 bushels were sent out of the island.

The following gives the exports and values for the past decade.

Year.	Export bushels.	Value. £.
1918	3,361	1,666
1919	2,704	1,392
1920	1,581	952
1921	2,637	1,472
1922	2,731	1,640
1923	2,482	1,595
1924	1,744	984
1925	1,548	866
1926	965	476
1927	745	352

Miscellaneous.

The value of miscellaneous agricultural crops, etc., exported and not previously mentioned are :—Vegetables £1,693, Oil and Seed for expressing oil therefrom £1,266, Nutmegs £695, Fruit £276, Wood £268, Mace £229, Farine £141, Poultry, Game and Eggs £38, and Ginger £26.

Rum Industry.

19,618 proof gallons of rum were distilled during the year. This is worth £2,452, valued at 2/6 per gallon.

POSSIBLE NEW INDUSTRIES.

Fruit and Vegetable Trade with Canada.

In the near future there will be a line of modern steamers running regularly between the West Indies and the Dominion of Canada. As a consequence of this there was recently held in Barbados an official conference to consider the growing of fruit and vegetables for the Canadian market. The outcome is not known at the time of writing, but undoubtedly the moment is propitious to consider what we in St. Vincent might do in the matter. The two fruit, most widely discussed in connection with export from the tropics to temperate countries are citrus and bananas. Broadly speaking, the former cannot be grown in quantities in St. Vincent. The crop is impatient of anything approaching a serious check to growth. During the wet season citrus trees do normally well, but the check in growth which takes place during the dry season is too severe for them. Bananas thrive in sheltered valleys, but the proportion of first class stems produced is not high. Mangoes flourish in St. Vincent, and there is no doubt that a lucrative industry could be built up with these. The question of variety is dealt with in another part of this Report. The fruit of Passiflora edulis, a plant closely related to the local "Bell Apple" would undoubtedly thrive in St. Vincent. It possesses a delightful flavour, it carries well, and would be popular in Northern markets. The fruit of this plant appears periodically in Covent Garden Market. Sapodillas would rapidly become popular, but only the finest of these should be shipped. This fruit reaches perfection in some of the Grenadines, the soil of St. Vincent is of too light a nature for them. Another fruit which might be considered is the grenadilla. This is delicious, one drawback is that only a limited number of fruit are set if the flowers are not hand pollinated. Pines grow well in St. Vincent and there should not be any difficulty in getting these to Northern markets. The local pine is perhaps Ripley, but importations of Red Spanish have recently been made and there are a few Smooth Cayenne plants in the island. Papaws would easily be saleable in Canada, but they would require very careful handling and packing. These fruit last for some time when picked just as they are colouring, and will

ripen well if the papain in them is extracted, but as this is done by means of cuts on the surface it disfigures the fruit.

Experiments carried out some years ago indicated that tomatoes, pumpkins, sweet potatoes, water melons, egg plant and squash, could be sent from the West Indies to Canada, and if shipped during the winter months meet a bare market and demand good prices. There is no reason why cucumbers, sweet peppers, etc., should not be added to the list. Dormant rhubarb roots could be imported and grown for export, and the same applies to sea kale. If any attempt is made to carry out the suggestions now put forward, the following points will have to be kept in mind.

1. Packing must be done carefully and standard packages used.
2. Grading will have to receive careful attention.
3. A central depot near the shipping centre will have to be established, in this the work of grading and packing will have to be done.
4. Each package will have to be examined and a brand or mark affixed. This mark would be a guarantee of quality.

Manila Hemp (*Musa textilis, Nees*).

Some time ago a number of Manila hemp or Abaca plants were found growing in a situation some 3 or 4 miles from Kingstown. These were probably planted by the late Henry Powell, when he was in charge of the St. Vincent Botanic Gardens. They had been neglected for years, but were quite healthly; the only abnormal thing about them was the large number of mature stems compared with the number of suckers. The appearance of these were such as to indicate that this plant would thrive in St. Vincent in positions similar to that in which it was growing. Experiments were started to obtain samples of hemp from stems with a view of sending them to the Imperial Institute for report and valuation. An implement similar to that used by natives in the Philippine Islands was employed for extracting the fibre. It was modelled from an illustration appearing in the Philippine Agricultural Review. During the obtaining of the fibre it was found that it was absolutely necessary to clean it immediately after the stems were cut; it was also noted that the grading of the fibre can be conveniently done when cleaning, and that it was very essential to extract all the pulp. The stems were harvested when mature, *i.e.*, when they had formed fruit. The average weight of a stalk works out at some 50 lb. and each gave 1 lb. 12 ounces to 2 lb. of clean hemp.

The amount of fibre obtained and sent to the Imperial Institute was 114 lb. This was graded into four grades, A. B. C. and D. At the Institute a sample of grade A. was submitted to chemical examination in comparison with commercial Manila hemp of the F. G. and L 1. grades. The results are given in the following table:—

		Present sample.	Manila Hemp.		
		Grade A.	F. Grade.	G. Grade.	L1. Grade.
		per cent.	per cent.	per cent.	per cent.
	Moisture	9·7	10·7	10·6	8·9
Calculated on moisture-free material	Ash	1·1	1·5	1·9	3·2
	a–Hydrolysis, loss	14·8	13·4	12·3	12·9
	b–Hydrolysis, „	21·6	20·2	19·2	19·3
	Acid Purification, loss	4·6	2·6	4·6	5·8
	Water Washing, loss	4·1	2·4	3·5	5·3
	Cellulose	74·8	76·9	74·5	74·8

"These results show that in chemical composition and behaviour the Grade A from St. Vincent compares quite satisfactorily with the three commercial grades of Manila hemp. The losses on a and b-hydrolysis however are very slightly higher, which is probably due to the fibre having been somewhat less thoroughly cleaned than that produced in the Philippines".

The following is a description of each of the four grades as given by the Imperial Institute.

"Grade A. This sample contained 10 lb. of clean well prepared, fairly fine, lustrous fibre but contained some narrow ribbons in it in which the strands had not been separated. The product varied in colour from pale cream to pale brown and was of excellent length, ranging from 8 to 12 feet, being mostly between 9 and 11 feet. The fibre was of good rather irregular strength. This was valued at £45 per ton compared with Manila 'G' grade.

"Grade B. This consisted of 21 lb. of fairly well prepared fibre, but some of the material was in the form of thin ribbons which however could be readily separated into the individual strands by rubbing or combing. The fibre was fairly lustrous and varied in colour from pale cream to pale brown, ranging from 7 to 11 feet, mostly between 8 and 11 feet. The fibre was mostly of fair but irregular strength, the darker coloured portion being very weak. This was valued at £42. 10. 0 per ton as compared with Manila 'G' and 'J 2.' grades.

"Grade C. This consisted of 36 lb. of fibre similar to grade B in length but finer. It was pale cream to pale brown and of fair but variable strength. This was valued at £46—£47 per ton compared with 'J 1.' grade.

"Grade D. This consisted of 47 lb. of material composed partly of clean narrow ribbons and partly of coarse fibre. This was fairly lustrous and mostly pale brown, a small quantity of paler fibre being present. The fibre varied in length from 8 to 12 feet, mostly between 9 and 11 feet, the ribbons were of good strength and the separated fibre not quite so strong. This was valued at £41—£42 per ton, Manila valued to-day of 'J 1.' £47, 'G' £43, 'J 2.' £42.

"At the date of valuation of these samples the higher grades of Manila hemp were quoted in London at £88, £78 and £74 per ton."

The following observations were added to the Report by the Chairman, Imperial Institute Advisory Committee on Vegetable Fibres. "The result is most encouraging and the samples are among the best I have seen produced outside of the Philippine Islands. The weak fibre referred to is probably derived from the outer sheath which should have been discarded, or it may be that the fibre having been left in a damp state, thus allowing physical deterioration to set in. This defect is well known in the Philippine Islands and it affects a considerable proportion of the crop when material is insufficiently stripped. It can be avoided by immediate thorough stripping of the fibre and thorough drying before it is baled."

The following remarks were also received. "The results of this investigation indicate that the fibre obtainable from *Musa textilis* growing in St. Vincent is of satisfactory quality and comparably with the Manila hemp produced in the Philippines. Such fibre would meet with a ready sale in the London market, and the extended cultivation of the plants for this fibre might therefore be encouraged"

At the time of writing an attempt is being made to obtain about a ton of this hemp for sale in London. The results of this should definitely indicate whether *Musa textilis* can be profitably grown in St. Vincent.

AGRICULTURAL INSTRUCTION, EDUCATION AND CO-OPERATION.

The number of Agricultural Credit Societies in the Colony is twenty-one, some of which did not function during the year.

Agricultural Officers paid frequent visits to estates and peasant holdings throughout the Island.

Two leaflets were written by the Agricultural Superintendent and distributed.

These were "Papaw and Papain," and "Notes on the Control of Pests periodically found in Houses."

Science Teaching.

This is done by the Science Master attached to the Grammar School.

Details of Staff and Administration.

The sum of £1,674 was voted for the upkeep of the Agricultural Department.

The following gives details of expenditure:—	£	s.	d.
Salary, horse and travelling allowance, Agricultural Superintendent	450	0	0
Salaries, Foremen, Botanic and Experiment Stations, Cotton Inspector, Officer in Training and Clerical Assistant, and horse and travelling allowances, Agricultural Instructor and Cotton Inspector ...	498	13	1
Upkeep Botanic and Experiment Stations, (labour, tools, manures, etc.)	577	2	1
Destruction of food plants of the Cotton Stainer ...	27	16	0
Salary, horse and travelling allowance, Government Vaccinating Officer	30	0	0
Other charges Government Veterinary Department ...	23	12	1
Special Cotton Investigations	11	19	10
	£1,619	3	1

Receipts.

The receipts for sale of plants and produce at the Botanic and Experiment Stations amounted to £110. 3. 5.

STAFF CHANGES, etc.

Mr. E. Banfield resigned from the position of Foreman, Botanic Gardens on August 16th. Mr. P. Branch was taken in his place on six months' probation. Mr. H. Nanton resigned as Officer in Training on October 31st. Mr R. Vanloo was appointed in his stead on the same period of probation as Branch.

The Agricultural Superintendent was, during the year, appointed by His Honour the Administrator, Chairman of the following Committees:—Permanent Exhibition, Forest Conservation in the Colony, and Cotton Restriction.

Correspondence and Distribution of Information on Agricultural Matters.

The number of minute papers dealt with amounted to 147 and the number of letters despatched was 607. In addition 219 copies of the Report on the Agricultural Department, 1926, were despatched.

Additions to Library.

Apart from publications received from British West Indian Departments of Agriculture the following were received:—

Meteorological Magazine; Handbook of the British West Indies; Report of the Imperial Economic Committee on the Marketing and Preparing for Market of

Food Stuffs Produced in the Overseas Parts of the Empire; Report on Queensland Acclimatisation Society; Report of the Minister of Agriculture, Dominion of Canada; Report of Proceedings under the Diseases of Animals Acts, Ministry of Agriculture and Fisheries; The Union of South Africa as a Source for Increasing Our Raw Cotton Supplies, British Cotton Growing Association; Report of the Bureau of Agriculture, Manila; Records, Brooklyn Botanic Gardens; Seasonable Hints, Department of Agriculture, Ottawa; Kew Bulletin; The Tropical Agriculturist; The Cotton Gazette; Annual Report, Department of Agriculture, Mauritius; Review of Applied Mycology; Journal of Agricultural Research; The Philippine Agricultural Review; Experiment Station Record; Bulletin of Imperial Institute; Journal of Department of Agriculture, British Guiana; Review of Applied Entomology; Bulletin, Department of Agriculture, Mauritius; Extension Notes, Porto Rico Department of Agriculture; Journal of Genetics; Bulletin, Department of Agriculture, Ceylon; The Empire Cotton Growing Review; Pamphlets, Agricultural Experiment Station, Cornell University; Report, Agricultural Deparment Nigeria; Report, Agricultural Department, Gold Coast; Report on the Land and Forest Department, Sierra Leone; Report, Agricultural Department, Gambia; Annual Report, Forest Department, British Honduras; Notes on Royal Botanic Gardens, Edinburgh; The Gardens Bulletin, Straits Settlements; Tropical Life; Report of the Minister of Agriculture, South Australia; Report, Rothamsted Experiment Station; Report, British Cotton Growing Association; Climatological Data, Porto Rico; Pamphlets, Ceylon Department of Agriculture; Commercial Review, British Guiana; Pamphlets, Department of Agriculture, Federated Malay States.

METEOROLOGICAL OBSERVATIONS.

The average rainfall for the past 34 years at the Botanic Gardens was 101·21 inches. The rainfall for 1927 was 98·67 inches; it was only 2·52 below the average.

The following gives the rainfall recorded at the Botanic and Experiment Stations during the period under report.

Month.	Botanic Gardens.	Experiment Station.
January	5·87	6·42
February	3·55	3·37
March	5·87	5·37
April	7·77	6·37
May	6·89	6·82
June	16·74	16·49
July	8·58	9·03
August	4·74	6·2
September	7·52	7·99
October	12·14	16·45
November	9·38	9·37
December	4·62	4·57
Total	98·67	98·45

At the Botanic Gardens rain was recorded on 279 days; the heaviest fell on October 16th, when 3·70 inches were measured. Rain fell at Experiment Station on 296 days, the heaviest fall was recorded on October 28th, when 5·28 inches were measured.

CHART 1.—ANNUAL RAINFALL, BOTANIC GARDENS, ST. VINCENT, 1894-1927.

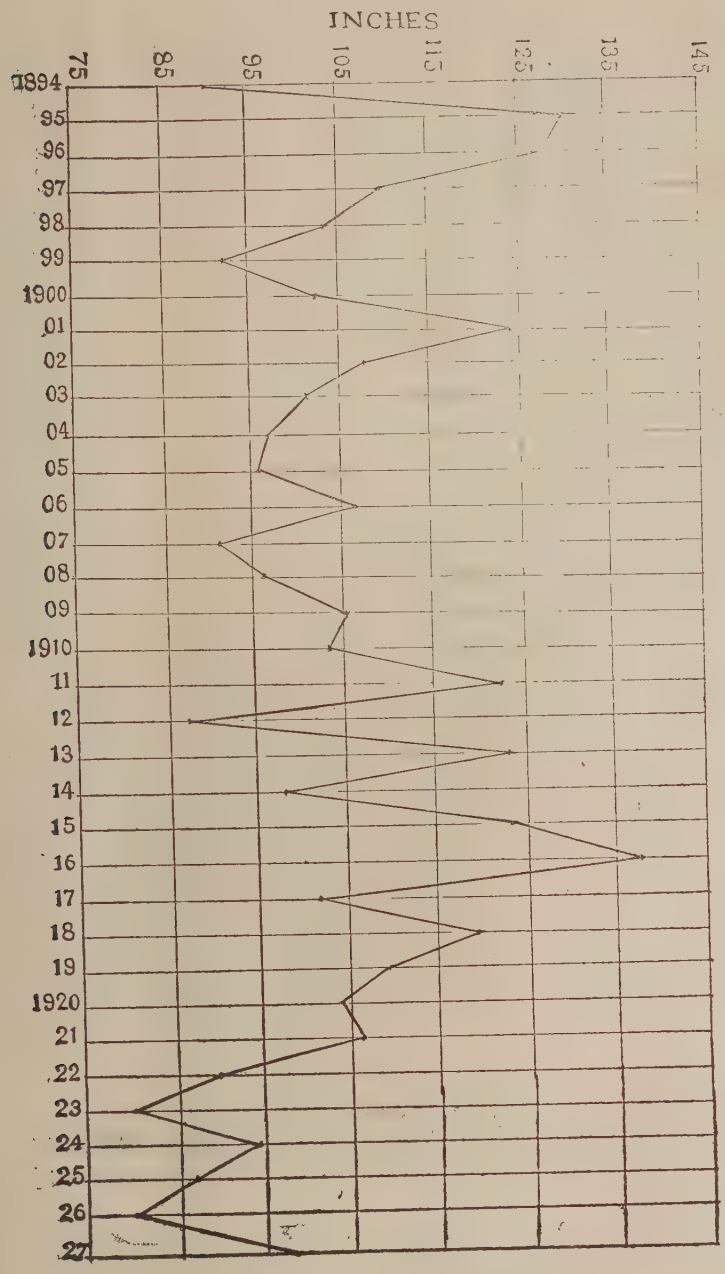
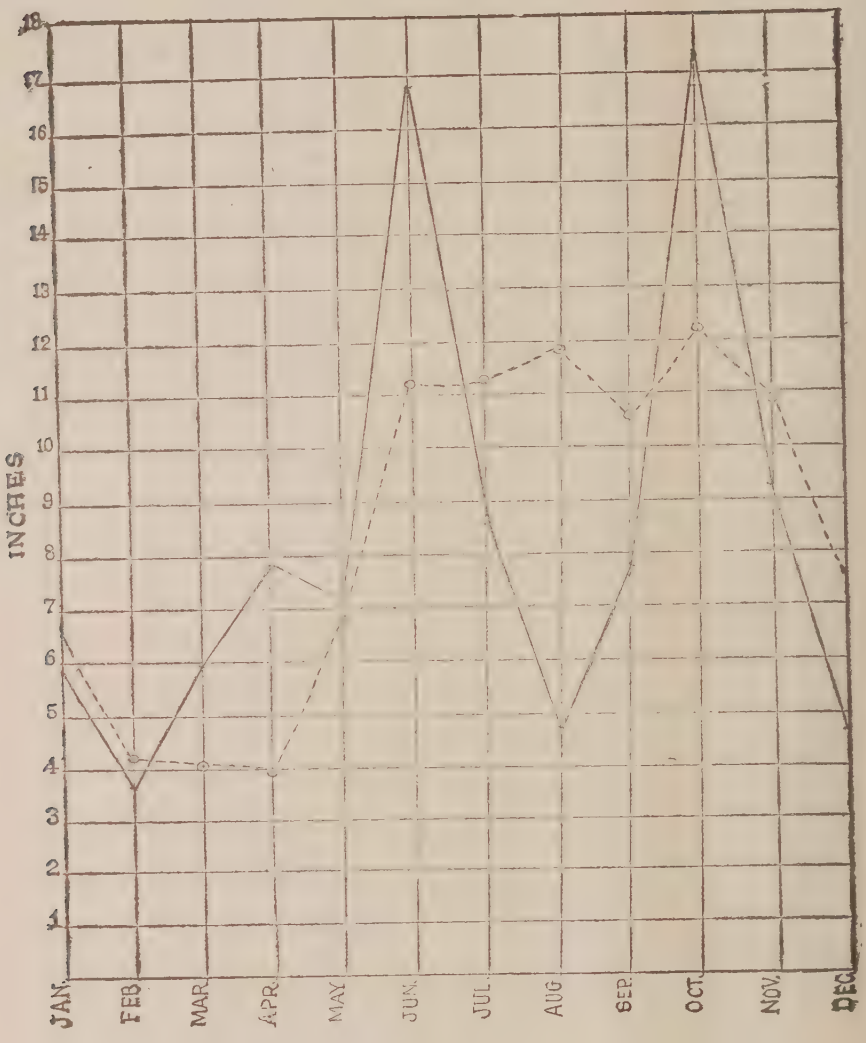


CHART 2.—MONTHLY RAINFALL, BOTANIC GARDENS, ST. VINCENT, 1894-1927.



Black line represents monthly rainfall, 1927.
Dotted line represents mean monthly rainfall, 1894-1927.

The following gives the mean temperature, average degree humidity, and the mean barometric pressure in inches for each month during the year :—

Meteorological Observations, Experiment Station, for 1927.

Month.	Mean Temperature F°.	Average degree of humidity. Saturation 100.	Mean barometric pressure in inches.
January ...	78·7	72	30·031
February ...	78·2	70	30·064
March ...	79	73	30·055
April ...	79·6	77	30·002
May ...	80·9	75	30·045
June ...	80·4	77	30·043
July ...	81·2	77	30·068
August ...	81·8	74	30·009
September ...	81·8	74	29·970
October ...	82	75	29·963
November ...	81·2	75	29·923
December ...	79·8	67·5	29·986
Mean ...	80·3	73·8	

Atmospheric Pressure.

The reading of the Barometer, corrected for instrumental error, elevation and temperature ranged from 30·167 on July 11th to 29·814 on November 17th.

Official Visitors.

On April 17th, the Commissioner of Agriculture and the Principal, Imperial College of Tropical Agriculture, visited the Botanic Gardens. On July 7th, the Assistant Director, Royal Botanic Gardens, Kew, and the Professor of Botany and Genetics, Imperial College of Tropical Agriculture, visited the Botanic Gardens. They also interviewed His Honour the Administrator at Government House. They again visited St. Vincent on July 28th.

The Commissioner of Agriculture visited the island in September. He arrived on the 18th and left on the 22nd. During this period he paid visits to estates, and addressed a meeting of planters at the Court House.

A party consisting of Professor R. C. Wood, Mr. A. L. Baker, Lecturer in Agriculture, Mr. G. Wright, Lecturer in Economics, and six post-graduate scholars from the Imperial College of Tropical Agriculture, visited the island. This lasted from December 25th to December 31st.

Veterinary Report.

The post of Veterinary Surgeon was not filled during the year.

Microscopic examination of ears of animals for anthrax was performed at the Colonial Hospital.

The vaccination of stock for export was performed by the Government Vaccinating Officer.

The total sum expended on Veterinary work was £52. 12. 1 made up as follows :—

Salary and Travelling Allowance, Government Vaccinating Officer	£30	0	0
Burial of Carcasses	23	12	1
Total	£53	12	1

Anthrax.

No cases of anthrax have been recorded since the year 1914.

Vaccination.

Vaccination was only performed on animals for export to St. Lucia. Twelv animals were prepared for export.

Certificates were issued for 2,464 raw hides and skins exported to Barbados These were valued at £221. 2. 6.

Table A.

Showing exports of animals for which no certificates were given :—

Class of Animals.	Number.	Value. £
Sheep ...	669	263
Goats ...	1,294	77
Pigs ...	1,672	1,646
Total ...	3,635	1,986

Table B.

Showing number, kind and value of stock for which Veterinary certificat were granted, also Colonies to which the animals were exported.

Class of Animals.	Barbados.		Trinidad.		St. Lucia.		Grenada.		Total.	
	Number	Value. £	Number	Value. £	Number.	Value. £	Number.	Value. £	Number.	Valu £
Cattle ...	99	899	2	10	28	234	20	103	149	1,2
Horses ...	16	285	—	—	—	—	—	—	16	2
Asses ...	105	328	10	23	—	—	—	—	115	3
Mules ...	14	235	—	—	—	—	—	—	14	2
Sheep ...	110	23	—	—	—	—	—	—	110	
Total ...	341	1,770	12	33	28	234	20	103	401	2,1

Imports.

Thirteen animals valued at £118 were imported during the year.

Table C.

Class of Animals.	Number.	Value. £
Horse ...	1	42
Cattle ...	7	67
Goats ...	3	8
Pigs ...	2	1
Total ...	13	118

Table D.

Showing deaths of animals in districts from natural causes.

District.	Cattle.	Horses.	Mules.	Asses.	Sheep.	Goats.	Pigs.	Total.
Kingstown ...	5	—	1	—	1	4	4	15
Mesopotamia ...	3	—	—	2	—	—	1	6
Calliaqua ...	2	2	—	—	—	1	—	5
Total ...	10	2	1	2	1	5	5	26

Table E.

Showing deaths of animals in each month of the year ended December 31st, 1927.

Months.	Cattle.	Horses.	Mules.	Asses.	Sheep.	Goats.	Pigs.	Total.
January ...	2	—	—	—	—	—	—	2
February ...	1	—	—	—	—	1	—	2
March ...	2	—	—	—	—	—	1	3
April ...	—	—	1	—	—	—	—	1
May ...	1	—	—	—	—	1	—	2
June ...	1	—	—	—	1	—	1	3
July ...	—	1	—	—	—	—	—	1
August ...	1	1	—	—	—	—	1	3
September ...	2	—	—	—	—	—	1	3
October ...	—	—	—	—	—	1	1	2
November ...	—	—	—	2	—	1	—	3
December ...	—	—	—	—	—	1	—	1
Total ...	10	2	1	2	1	5	5	26

Report on the Agricultural Credit Societies for the Year 1927.

This report is the sixteenth submitted on these societies since their inception

Two Societies, Spring Village and Union Island, are not making any attemp to meet their long standing obligations. On the whole, however, the business o these Societies is gradually being straightened out. Barclays Bank is refusing t grant loans to any Society that has not promptly paid its debts in the past. This institution cannot be blamed for taking up this attitude which is wholly due t the worry and trouble caused by these Societies by not promptly repaying loans.

Below is given a short account of the transactions of each Society with Barclays Bank and other Institutions and Individuals. The membership of each is given as it appears in the Registrar's Records.

Georgetown. This Society borrowed from Barclays Bank the sum of £325 in 1926. The loan was repaid in 1927. Only £50 of a loan of £100 obtained from a private individual in 1926 was repaid. No loan was obtained during 1927 The Society has a membership of 89.

Union. In June, 1926, this Society contracted, loan of £271 from Barclays Bank. During the year under report the sum of £123. 18. 6 was repaid, thus leaving a balance of £147. 1. 6. This Society has a membership of 53.

Troumaca. In 1926 this Society borrowed £100 from a Provident Society and £90 from a Temperance Society. The interest on the loans has been paid but not the principal. This was done at the request of the Societies from whom the money was borrowed. This Society has a membership of 56.

Spring Village. This Society again made no attempt to repay the balance of a loan of £220 contracted in 1921, the amount unpaid being approximately £118. The money will have to be collected through the medium of the Courts of Law. There are 53 members belonging to Spring Village Society.

Clare Valley, Questelles. The loan of £250 obtained from Barclays Bank in 1926 was repaid in 1927, and in the latter mentioned year a further loan of £200 was contracted. This is repayable in 1928. The Society has a membership of 54

Barrouallie. This Society still owes a small balance on a loan of £20 obtained from Barclays Bank in 1921. The sum in question is only £2. 3. 6. which represents less than 1/- per member ; the membership being 47.

Redemption. A loan of £90 obtained from Barclays Bank in 1926 wa promptly repaid in 1927. A further loan of £100 was contracted during the yea under report. This Society has a membership of 56.

Orange Grove. During 1926 this Society obtained a loan of £240 fro Barclays Bank. In 1927 the sum of £200 was repaid, leaving a balance of £4 The membership of this Society is 47.

Union Island. No attempt was made during the year to clear off the balanc of the loan of £400 contracted from Barclays Bank in 1921. When the Repor on these Societies for the year 1926 was being compiled the unpaid balance wa £121. 16. 8. At the time of writing it is £130. 17. 4, the difference being du to unpaid interest. The membership of this Society is 94.

Bequia. The loan of £125 obtained from Barclays Bank in 1926 wa promptly repaid in 1927. No. further loan was contracted. This Society ha a membership of 29.

Buccament, *Biabou*, *Marriaqua*, *Calliaqua*, *Layou*, *Harmony Hall*, *Belair-Gomea*, *Stubbs*, *Chateaubelair and Canouan* Societies did not contract loans during the year; none of these owe money. The following respectively gives the membership of each :—18, 80, 74, 56, 45, 43, 67, 61, 92, 29 and 17.

TABLE 1.

STATEMENT OF TRANSACTIONS.

Name of Society.	Date of Registration.	Total No. of members at December 31st, 1927.	Loans in 1927. £	Total loans since registration to December 31st, 1927. £
Georgetown Agric. Credit Society	24. 11. 13.	80	—	3,550
Union „ „ „ ...	24. 11. 13.	53	—	2,351
Chateaubelair „ „ „ ...	24. 11. 13.	27	—	1,250
Troumaca „ „ „ ...	24. 11. 13.	56	—	2,780
Lowmans „ „ „ ...	24. 11. 13.	61	—	1,775
Stubbs „ „ „ ...	24. 11. 13.	92	—	1,950
Spring Village „ „ „ ...	20. 5. 14.	53	—	1,180
Buccament „ „ „ ...	20. 5. 14.	18	—	1,215
Clare Valley-Questelles „ ...	8. 9. 14.	54	260	2,985
Barrouallie „ „ „ ...	11. 2. 15.	47	—	1,107
Biabou „ „ „ ...	30. 1. 16.	80	—	1,489
Marriaqua „ „ „ ...	16. 3. 16.	74	—	1,420
Calliaqua „ „ „ ...	5. 8. 16.	56	—	1,800
Belair-Gomea „ „ „ ...	5. 8. 16.	67	—	2,020
Orange Grove „ „ „ ...	23. 3. 17.	47	—	2,500
Redemption „ „ „ ...	23. 5. 17.	56	100	1,365
Union Island „ „ „ ...	23. 5. 17.	94	—	2,308
Bequia „ „ „ ...	23. 5. 17.	29	—	1,173
Layou „ „ „ ...	18. 6. 18.	45	—	945
Harmony Hall „ „ „ ...	2. 7. 17.	43	—	385
Canouan „ „ „ ...	9. 8. 17.	17	—	80
		1,155	300	35,628

TABLE 2.

COMPARATIVE STATEMENT SHOWING HOW LOANS WERE OBTAINED.

Period.	From where obtained.	Amount. £	Rate of Interest per cent.	Total. £
1913–14	Governor in Council	430	6	430
1914–15	" " "	100	6	
	Colonial Bank	905	8	
	Provident Society	40	6	
	Private Individual	25	10	1,070
1915–16	Governor in Council	50	6	
	Colonial Bank	800	8	
	Provident Society	50	6	900
1916–17	Colonial Bank	2,555	8	
	Provident Society	150	6	2,705
1917–18	Colonial Bank	3,320	8	
	Provident Society	150	6	
	Temperance Society	80	6	
	Private Individual	100	6	3,650
1918–19	Colonial Bank	4,201	8	
	Provident Society	160	6	
	Temperance Society	80	6	4,441
1919	Colonial Bank	3,774	8	
	Private Individual	275	6	
	Provident Society	175	6	4,224
1920	Colonial Bank	4,451	7	
	Provident Society	190	6	
	Private Individual	165	6	
	Temperance Society	80	6	4,886
1921	Colonial Bank	4,614	7	
	Provident Society	215	6	
	Temperance Society	80	6	
	Private Individual	100	7	5,009
1922	Colonial Bank	1,682	7	
	Provident Society	115	6	
	Temperance Society	85	6	
	Private Individual	100	8	1,982
1923	Colonial Bank	1,040	7	
	Private Individual	100	8	
	Provident Society	100	6	
	Temperance Society	100	6	1,340
1924	Colonial Bank	1,091	7	
	Provident Society	100	6	
	Temperance Society	90	6	
	Private Individual	100	8	1,381
1925	Colonial Bank	1,170	7	
	Provident Society	100	6	
	Temperance Society	90	6	
	Private Individual	100	7	1,460
1926	Barclays Bank	1,296	7	
	Provident Society	100	6	
	Temperance Society	90	6	
	Private Individual	100	7	1,986
1927	Barclays Bank	300	7	300

TABLE 3.

SUMMARY.

The loans repaid during the year amounted to ...	£1,165	12	10
The total loans obtained since the Societies were registered to December 31st, 1927	35,628	0	0
Interest on loans paid during 1927	73	18	5
Total interest paid from date of establishment to December 31st, 1927	2,557	14	10½
Loans outstanding other than those contracted in 1927	678	2	4

Report on the working of the Government Cotton Ginnery for the season 1927–28.

The figures necessary for the compiling of this Report are not available at the time of writing. It will appear as part of the Report on the Agricultural Department, 1928, and thus preserve continuity.

T. J.